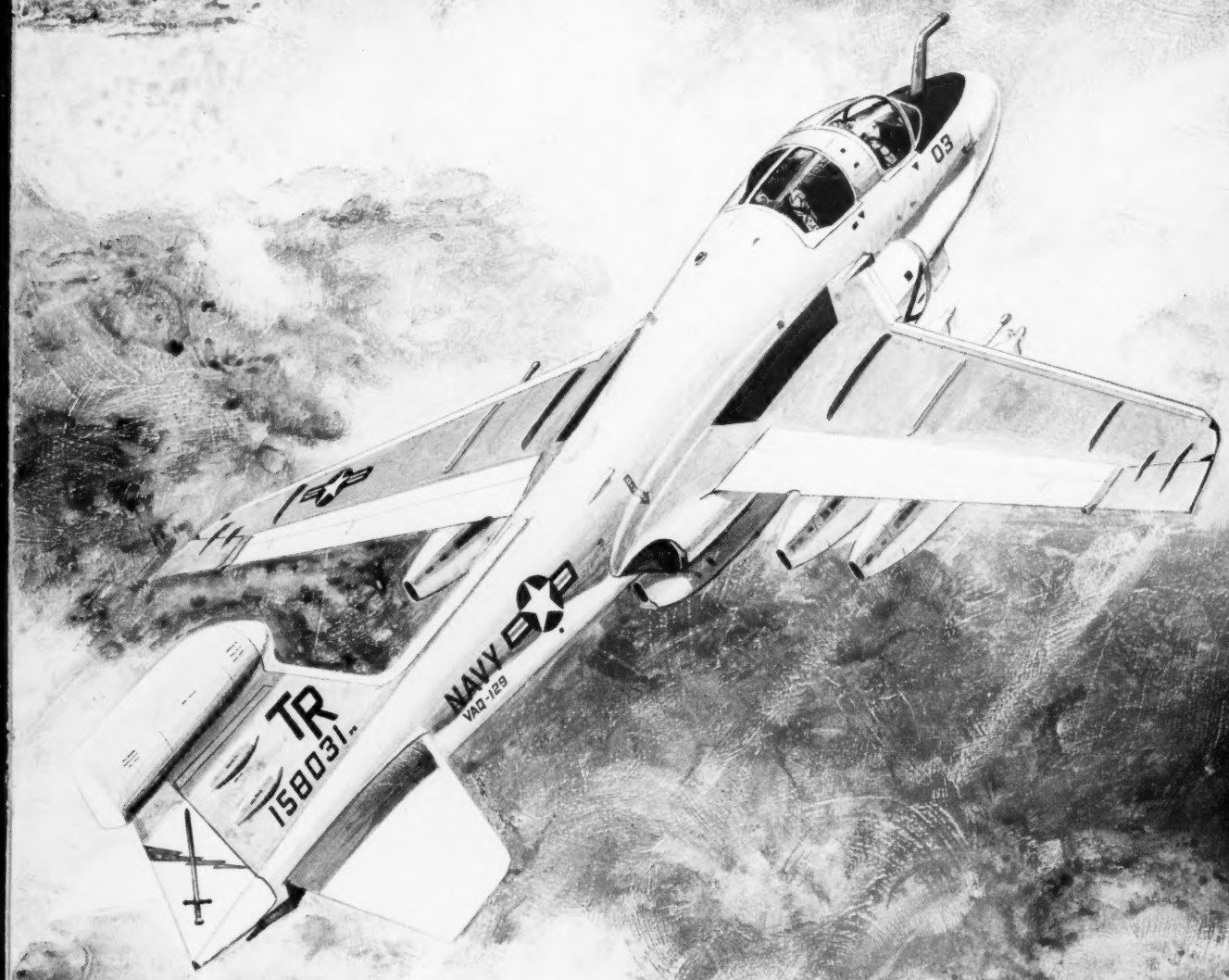
approach

MARCH 1976 THE NAVAL AVIATION SAFETY REVIEW



An experienced naval aviator provides a fledgling aviator with insight into the hazards, challenges, and requirements of a career in naval aviation.

DEAR JOE,

By Willie E. Cumbie
Naval Safety Center

I heard that you recently joined up as a student naval aviator; that you plan to make the Navy a career. That's great. You could not have chosen a more rewarding line of work.

I should introduce myself, but that's difficult. You see, I'm not one person; I'm a *composite* of some of the many aviators who are retiring this year after many years of service. My creators at the Naval Safety Center, working with their data bank, put me together because they thought I would have some important things to say, particularly to someone who is just beginning his great adventure. So, bear with me . . .

Right off, I have to say that I made a lot of dumb mistakes during my career. I had to learn a lot of things the hard way. This cost the Navy a couple of aircraft, but I was lucky. Many of my fellow pilots lost their aircraft *and* their lives. Most of these losses were needless.

We're still losing men and aircraft needlessly, but not nearly on the scale that we were in 1946 when I started flying. One of the reasons for this is that we're gradually "getting it all together" to the point that we're actually able to learn from the

experiences of others. This whole process is called "professionalism." And, I might add, we're getting it all together none too soon. With aircraft costing up to $15 million each, we can't afford losses of the magnitude of 1946 – or even 1975.

With you relieving me on station, I feel obligated to pass on to you a few of the things I have learned during my career. Much of what I have to say has been learned from personal experience (the hard way), but some of it has been learned from the experience of others. Let's hope that you will be able to avoid most of the trial and error which has characterized my career.

• *Weather.* Pay close attention to the weather every time you fly. Make sure that your proficiency is equal to the expected weather. Avoid thunderstorms if at all possible. They pose the threat of hail, lightning, icing, and extreme turbulence – all of which have a potential to cause a loss of control. Know how to get inflight assistance in avoiding severe weather. Be aware of controllers' limitations. Watch out for fog. It can be insidious, especially ground fog encountered on final approach. Watch out for wet or icy runways. Know all about the hydroplaning and

wet/icy runway landing characteristics of your aircraft. Know your crosswind procedures and limitations.

• *Aerodynamics.* Don't get complacent about aerodynamic facts of life. Accidents involving the region of reverse command, wake turbulence, hard landings, overrotation on takeoff, diving for the deck, inflight engagements, stall/spin/departures, etc., can all be prevented by proper application of aerodynamic principles.

• *Air Traffic Control.* Whether you operate from a shore station in the U.S., an overseas shore station, or from a ship at sea, you will find that you must understand and comply with a multitude of air traffic rules, regulations, and procedures. The safe and orderly movement of aircraft depends upon you being an *expert* on the subject. You'll be given a lot of help throughout your career by periodic assignment to formal schools, but you have to pursue this subject continuously, on your own, if you aspire to be a professional.

Facilities is a related subject which you will want to stay on top of. Navigation and approach facilities, runways, lighting, field arresting gear, airfield obstructions, crash and rescue facilities, servicing, visual approach lighting, and shipboard A-gear and catapults are some of the areas in which you should be well-versed.

• *Fuel Management.* Don't forget what makes your engine go. Plan, monitor, and manage your fuel to avoid the embarrassment and grief which inevitably follows fuel exhaustion in the air.

• *Aviate, Navigate, Communicate.* Sooner or later, you will find yourself overloaded with tasks in the cockpit. When this happens, fall back and regroup. Aviate, navigate, and communicate, in that order. It may save your day.

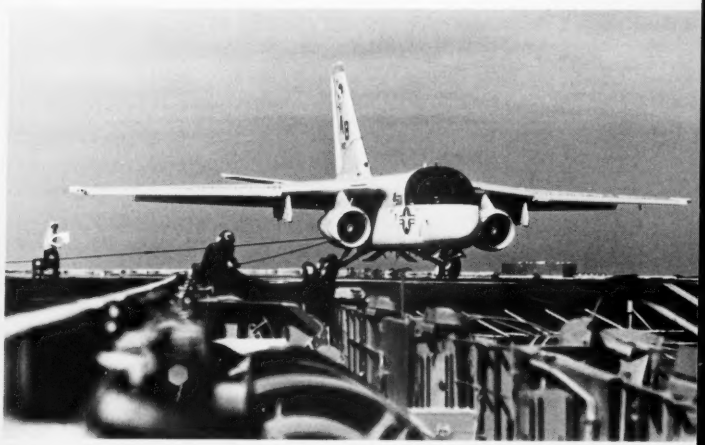
• *Life Support and Physiological Factors.* Hypoxia, hyperventilation, disorientation, distraction, vertigo, and visual illusions are all physiological factors which must be reckoned with. You'll get a lot of training in these subjects. Learn how they affect your safety. Know all about your life support equipment and how to use it properly. Ejection seats, parachutes, rafts, signaling devices, antiexposure and anti-G suits, flight suits, helmets, gloves, and survival packets are all items which have a direct bearing on your safety. Always ensure you are properly outfitted and know exactly how to use this equipment.

• *Psychological Factors.* Judgment can be adversely affected by emotional factors. Personal considerations can destroy objectivity in making decisions. Time after time, it has been reported that an accident occurred when an individual pressed on in the face of a clearly deteriorating situation because of a personal desire to complete a flight – perhaps to meet someone at an appointed time – a wife, a girl

friend. It's happened so often that the syndrome even has a name: "Get-home-itis" or "Get-there-itis," as the case may be. It's not fair to imply that it's always the lure of a female which gets pilots into trouble. It may be merely the desire to return home to familiar surroundings. It may even be an understandable but unjustified desire to get the aircraft back to the squadron in time to meet a routine training commitment.

Then, there are personal family and financial problems. Almost everyone experiences such problems at one time or another. The trick is to prevent such problems from adversely affecting performance in the air. The CO and the flight surgeon will help you in this, either by counseling you or grounding you, if they know about it. It is well to remember that it's no crime to consult the flight surgeon or CO for advice or with a view toward temporary removal from the flight schedule.

"Can-do-itis" is another important consideration. Sometimes a pilot will fly when he is sick or very fatigued. He may do this because he likes to present an ever-ready image, or he may do it to support a command effort to meet operating commitments, even though almost everyone knows the command is overcommitted. The overcommitment may be the result of too many assigned missions, undermanning, lack of material support – or all three. Obviously, you don't want to be the one to tell the CO that the squadron can't do a job which he has already calculated can be done. So what can you do? You can support the command effort fully, but depending on your position, make every effort to be on guard against shortcuts and expedient actions. Moreover, you can ensure your command superiors are fully aware of the true situation in order that they may accurately weigh the risks against the operating need.



• *Complacency.* You are going to become expert in many aircraft and phases of flight. You'll have a tendency to develop a feeling of euphoria, regardless of the real life situation. Don't do it. The cockpit of an aircraft is no place to be fat, dumb, and happy. Keep on your toes and always keep a good lookout, weather permitting.

• *Pilot in Command.* Know your responsibilities and authority as pilot in command. On every flight, you're going to work closely with other members of the team – maintenancemen, controllers, etc. They are all professionals, but like pilots, they do err from time to time. It is well to remember that as pilot in command, you are the final authority as to the safety of your aircraft. Accordingly, you must not blindly follow directions. On the contrary, you must satisfy yourself in every possible way that you are operating safely. Terrain clearance is a case in point. Regardless of your clearance, don't fly into the ground. If you do, everyone will be sorry, but you will be dead. Of course, your authority and responsibility as pilot in command extend into every area of flight. Don't forget it!

• *Know Your Aircraft.* Aircraft today are very complex. It takes relatively little training to learn to get one off and on the ground, but it takes a great deal of study to learn to employ the aircraft to its full system capability. Moreover, many emergencies and malfunctions require an indepth knowledge of aircraft systems. Finally, almost all aircraft have design idiosyncrasies which must be taken into account. Perhaps it is a canopy jettison handle located next to the emergency generator handle; or perhaps it is a throttle quadrant which permits occasional inadvertent engine shutdowns. Whatever it is, you should know about it and take precautions. A great effort is being made to engineer each aircraft for safety, beginning with the original design. This concept is relatively new, however, and there will be less than perfectly designed aircraft in the Fleet for the foreseeable future.

• *Emergencies.* Sooner or later, you're going to have an airborne emergency. Your judgment on what to do about it will depend almost entirely on your knowledge of the situation (too late to study then). But, here's an additional thought: Even if you believe you have the situation under control, make it a habit to let someone (controlling agency, base ops) know what your problem is. They may or may not be able to help, but it makes sense to have them standing by, if needed.

• *Checklists and Preflights.* During your career you're going to make thousands of flights. It's

reasonable to believe that during this time you are going to forget to do something important – like forgetting to lower your landing gear – unless you take precautions. One of the most important things you can resolve to do at the beginning of your career is to always make proper use of your checklists. Likewise, it's reasonable to believe that sooner or later, during these thousands of flights, you are going to draw an aircraft which is not really ready for flight. The best defense against this eventuality is to ensure a thorough preflight before each takeoff. Finally, a thorough *postflight* inspection will be an important contribution to the team effort.

• *Communicate Properly.* Clear communication is essential to teamwork. The obvious need is to communicate between elements of a flight and with controlling agencies. This should be done in a concise, business-like manner. To do so, you must know your radiotelephone frequencies, procedures, light and hand signals, terminology, and clearance shorthand cold. Less obvious, but equally important, you need to communicate with maintenance/ground support personnel (in addition to the AOM) on all aspects of flight operations.

After you get your wings, complete the RAG training, and get your squadron assignment, you'll be eased into an important billet in ops, maintenance, weapons, safety, or admin. Maybe you'll become an LSO trainee. Anyway, for the next few years, you're

going to be both an administrator and an aviator. You'll be working to qualify for a flight leadership position. You'll be deploying periodically to overseas locations. You'll be going to school regularly. In short, you're going to be very busy developing as a naval aviator, working for advancement.

One thing you ought to keep in mind, Joe. With very few exceptions, only the real professionals are going to make it very far up the ladder. There is more and more evidence that the marginal performers are being systematically weeded out. This is not being done in any punitive way. It's simply the recognition that both the individual and the Navy benefit from administrative action to remove individuals from flying status after it becomes reasonably clear that they cannot or will not consistently meet the high standards of the profession. Hardly any CO has the stomach anymore to call on a widow, knowing that he overlooked her husband's inadequacies in the unfounded hope that he would "work out his difficulties."

One thing I want to mention for sure is attitude. It takes a special kind of person to enjoy all the demanding training and operations – like a night approach to the pitching deck of a CV, or hovering a helo at 40 feet over a black sea while "listening" for subs, or controlling a 120,000-pound P-3 through an intricate, overwater, night ASW search pattern at 300-500 feet. The norm is a competent, confident, aggressive, competitive, outgoing person who approaches life with considerable exuberance. He enjoys the camaraderie among fellow aviators and naturally seeks to win recognition from them for his skill and courage. This attitude, fostered by the skipper, is what makes a first-rate, professional squadron with high *esprit de corps*. The catch here is that you must distinguish between professional performance and an immature tendency to perform ill-conceived, patently dangerous acts for no good reason except to "show off." As one naval aviator said, "If you consistently put your ordnance on target, catch the target wire on the ship, and plan all flights with precision, your reputation is made." There is no need (and no approval in the Fleet) today for doing barrel rolls in A-3s, aileron rolls in the traffic pattern, or buzzing the old homestead.

Looking to the future, you can expect great advances in aviation technology. Aircraft and equipment will get more complex, but there are already many developments underway (with more to come) to ameliorate the load on the pilot: automatic field and carrier landing systems, integrated cockpit design, and mission-oriented equipment developments. For example, in some of today's aircraft you can dial in the coordinates of any place in the U.S., punch a button, and immediately read out the bearing and distance to that point. This will be something to look forward to as you struggle during primary to find your way from the papermill to Atmore and back.

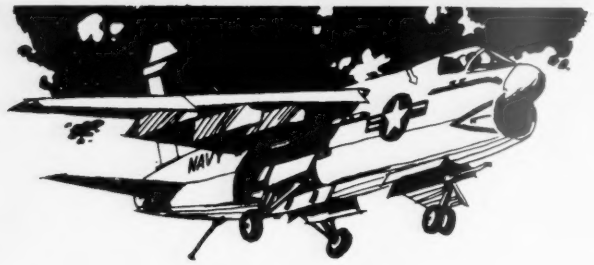
There are those who say that there is little room in naval aviation for initiative and innovation, but don't believe it. There is a continuing search for improvement in training, operations, tactics, hardware, and management. Don't forget that your ideas have to be well thought out, practical, and able to survive stiff debate, competition, and testing. In a word, the quality of your career in the Navy will be highly dependent upon the degree of professionalism which you live by.

Best wishes for a safe, satisfying, and professionally rewarding career.

CDR Composite

(This is the last of many fine articles written by the late Bill Cumbie. – Ed.) ◄

AIR BREAKS



Intruder **Landing Probs.** An A-6E was enroute to an airfield on a cross-country training mission. An onspeed ASR approach was made in VFR conditions into a 7000-foot runway, wet from an earlier rain shower. Upon touchdown, both aircrewmen noticed flaperon popup had not occurred, so the pilot cycled the switch and the controls in an attempt to get popup. Approximately halfway down the runway, the instructor BN noticed that the power was still at 87 percent and the airspeed at 110 KIAS. Throttles were then retarded to IDLE, flaperon popup occurred, and braking was initiated. The arresting hook was lowered just prior to the overrun gear, and assisted by the arresting gear, the aircraft came to a stop 12 feet from the end of the prepared overrun. As a result of heavy braking, both brakes were fused.

The primary cause of this incident was poor pilot technique on landing. Even though the runway was wet and somewhat shorter than usual, a normal rollout could have been accomplished with no flaperon popup, if the throttle was at IDLE. The pilot's failure to check the throttle position at IDLE (the reason for the problem) greatly increased the distance required to stop. The pilot also pumped the brake pedals instead of using ever-increasing pressure, the recommended method for A-6s. Had proper braking been used, the aircraft could still have been stopped on the available runway remaining, once the power was reduced. Wrong braking technique necessitated use of the overrun arresting gear and overheated the brakes to the point of fusing them.

Head for the Alternate. On a September night we were returning to Lakehurst after a day of ASW operations off Norfolk. The flight consisted of two SH-3s on an IFR flight plan.

When we arrived at Lakehurst, the weather was 200-foot ceiling and one-half mile visibility in ground fog. We elected to have each helicopter shoot an individual approach.

We were No. 1 and were quickly vectored to a glide slope position for Runway 15. I was flying the approach from the left seat while the HAC handled all communications from the right seat.

As we approached glide slope, I realized that GCA had given us the abbreviated pattern used to expedite practice approaches. This required us to begin our descent prior to completing turn to final. Despite this, the approach was smooth and normal to decision height.

I leveled the aircraft and anticipated a missed approach. We hadn't broken out of the fog, and visibility was very poor. At this point, the HAC stated he had the runway lights in sight. I came off the gages but still couldn't see the ground or the runway. However, some lights appeared as a glow in the fog about 15 degrees starboard. I assumed these to be the runway lights and attempted a visual turn to parallel them. During this turn, the HAC became aware of a high sink rate, took control, and waved off.

We had come close to flying into the ground. I guess when I came off the gages and didn't see the runway environment, I became disoriented and allowed the helicopter to dive while I was turning to parallel the lights. We made two more unsuccessful passes, never made contact, and then diverted to our alternate.

The No. 2 helicopter landed without incident. He used a procedure common with many

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airlines. The copilot flew the approach as I had, but *never* came off the gages. When his HAC was confident he had the runway clearly in sight, the HAC took control and landed. Meanwhile, the copilot remained on the gages ready for a missed approach. This procedure eliminated the need for the copilot to transition from the gages to the runway when they were close to the ground and visibility was greatly reduced by fog.

Procedures Breakdown. A P-3 was washed by a civilian contractor. Prior to the wash job, line personnel prepared the *Orion* in accordance with the MRC deck card 14 (special 28-day aircraft cleaning). Instead of plugs, masking tape was used to cover the static ports.

After the wash, the tape was not removed by line personnel. Card 14 was signed off and the aircraft was released for flight the next day.

A prolonged preflight was interrupted due to ground electrical problems and no one noticed the taped static ports. During the takeoff roll the aircraft seemed to accelerate slowly but the PPC attributed this to a high OAT of 91 degrees. The takeoff was continued and the aircraft became airborne.

After takeoff the pilot realized he had two sets of useless airspeed/altimeter systems. He remained in the pattern and, by using his angle-of-attack and radar altimeter, executed a normal approach and landing.

The CO in his endorsement blamed this goof on improper maintenance procedures and the crew's vulnerability to distraction. If IFR conditions had prevailed, this flight could easily have ended in disaster. The recent loss of a commercial airliner bears testimony that a pitot-static system failure in IFR conditions jeopardizes correct instrument interpretation.

Let's take a good look at all the goofs:

- The plane captain missed removing the tape after the aircraft had been washed.
- The CDI signoff without an inspection was criminal.
- The flight engineer's preflight was inadequate.
- The pilot's preflight, even though there were three officers in the crew, was poor. No one noticed the taped ports even though they are close to the boarding ladder.
- The fact that the PPC continued his takeoff roll reflects a multiple breakdown in pilot procedures.

The CO opined, "We were lucky this time."

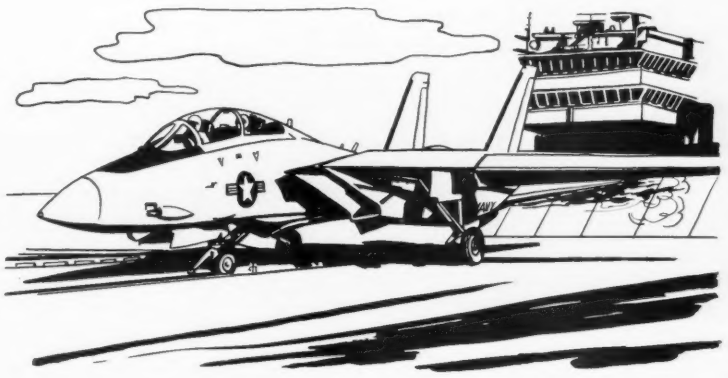
Be Specific. During CQ operations, an F-14 on No. 2 catapult developed a fire in the port engine. The air boss noticed the fire and yelled over the UHF, "Fire in your port engine. Shut it down." At that time, there were about 14 dual engine jet aircraft either in the pattern or on deck turning. There is no indication that any other aircraft shut down an engine, but the air boss' transmission set the stage for a potential mishap. At the very least, it caused some anxious moments.

It's difficult to be specific in times of stress, but it is certainly important.

Idiot Light's Right. The CH-46D was scheduled for a maintenance test flight after the aft swashplate and vertical shaft had been changed. The pilots turned up and engaged as temps and pressures began to rise. All lights went out except the forward transmission pressure which remained ON. The blades were disengaged, and the engines secured when there was no rise in pressure.

The troubleshooters found the forward transmission QDC (quick disconnect) lube line not firmly connected. It was secured, and the next engagement was normal. No one could explain why the QDC was loose, but the plane captain remembered that 2 days before changing the aft swashplate, the forward drip pan was off and the subject line was hanging down.

Close scrutiny by maintenance when working on aircraft is mandatory, and QA inspection of all work should be carefully completed. In this instance, the QDC lines are not in the pilot's vision on preflight unless he drops the drip pan each time. This is not required by NATOPS. ◄



HAWKEYE crew coordination

By LCDR Richard J. Malla
VAW-125

THE crew reported locked and ready for takeoff as the pilots continued down the checklist. With the director waving two wands, the E-2C *Hawkeye* inched its way forward into the buffer and came to a stop when the director crossed the wands. The shuttle was hooked to the nose tow.

"We're in tension," reported the copilot. Over the ICS the crew could hear the pilots check out the gages.

"Advisory lights and warning lights good. Hydraulic pressure, oil temperature, oil pressures OK. RPM steady, TIT and horsepower matched. Looks good to me."

"Concur."

"Lights on."

The pilots of the E-2C faced a no-horizon, black night as they turned on their "twirlies" to signal readiness for the shot down cat 3.

"He's touching the deck," the pilot said.

The crew braced themselves for their ride down the track. In a few short seconds the *Hawkeye* was flung into the darkness on another long command and control mission.

"Flight from CICO (Combat Information Center officer), my instruments show a positive rate of climb, airspeed looks good, climb radial 60 degrees port."

"Roger."

On into the night the E-2C hums to carry out the mission. This is a typical example of crew coordination when one talks about flight safety. Here at VAW-125 we have emphasized the need for an all-crew concept to monitor all phases of flight – from brief to debrief. In addition to the mission brief, an emergency of the day is covered; departure and marshal information is discussed so that the entire crew knows what is going to happen.

Specific assignments are made to ensure heads-up performance all during the flight. The CICO monitors his flight instruments to back up the pilots, the ACO (air control officer) provides traffic advisories to ensure safe separation, and the radar operator monitors the readiness of the avionics weapons system. While airborne, the pilots are assigned to specific radio frequencies to help the CIC crew answer or reply to the myriad radio transmissions.

Enroute home, after completing the mission, duties remain mostly the same. The ACO keeps a sharp watch for other aircraft, and the CICO sets up and monitors the backup radios that will be needed for recovery in the event the pilots have radio failure. The plane commander carefully briefs all crewmen on ICS as he goes over the procedures and checklists for landing. Assigned altitudes are called out by the copilot (1000 feet below when climbing or 500 feet above when descending). When the gear is dropped and flaps selected, the CIC crew visually checks the gear down and the flaps set. When taxiing and all is clear, the copilot keeps a constant thumbs-up where the plane commander can see it out of the corner of his eye.

The crew coordination effort has become an integral part of VAW-125's operations. Is it peculiar to the E-2? It shouldn't be. Any multiseat aircraft crew can use this simple procedure. Involve everyone and maintain flight safety! ◄

It doesn't take long!

IT was a warm, humid, overcast afternoon. The ceiling and visibility were pretty good, and activity on the flight line was normal. There were several holes in the flight line indicating some helicopters were out flying, and the rest of the aircraft on the line seemed ready to go if any flightcrews showed up.

A couple of plane captains and two or three maintenance troops were lounging near the outside corner of the hangar. They were keeping an eye open for any birds that might return early. Their conversation included an opinion by one that it was kind of muggy, and he'd bet they would have a storm before the afternoon was over. He was so right!

About 1500 local, all flights had returned, and the men entitled to liberty were already thinking about a shower, cool clothes, and a cold beer. At that time the weather was 3000 broken, 25,000 overcast, 7 miles, occasional distant thunder, and light rain showers.

Twenty minutes later the weather had deteriorated to 1000 broken, 25,000 overcast, half a mile, gusty winds to 32, and a thunderstorm west of the field. As if on cue, the station radar was down, and no word was passed to the squadron that in the next 10 minutes there would be a real doozy of a storm.

Then, at 1530, all hell broke loose. At the height of the storm the ceiling was estimated at 800 broken, 1500 overcast, 1/16 of a mile, winds in excess of 60 knots, and torrential rains. Although not officially confirmed, cyclonic winds were observed on the squadron flight line.

The row of CH-46s neatly parked, chocked, and tied down was quickly messed up. Tiedowns were snapped, some helos were thrown into others, and other helos were turned as much as 180 degrees by the wind. Why there wasn't more damage than there was no one knows. However, one did receive substantial damage, one had limited damage, and a third one had the pilot's chin bubble smashed. Additionally, a flight line 150-pound PKP fire extinguisher was damaged by windblown debris.

In the next half hour the weather improved to 800 scattered, 1000 broken, 25,000 overcast, 3 miles, winds 050 at 4, thunderstorm moving east, but by then the damage had been done.

Thunderstorms regularly take a big toll of parked aircraft and often cause personnel injuries. They are not to be taken lightly; they're highly destructive and dangerous to life. Don't forget it! ◄

HERE is the intrepid naval aviator navigating his faithful old Tango-28 through the dark and lowering skies to NAS Outback where, with drooling anticipation, a cute blonde dolly waits for him. Our hero is cruising along on a remarkably extended upwind. (There is a flight surgeon in a TA-4 in the pattern and the tower has assigned him all airspace within 3 nm in any direction. This is considered marginal.)

Our Aviator's Subvocal Utterances and mental processes go something like this.

An Unusual Cross-Country

or Why I'm coming home on the bus, Mom.

By CDR A. F. Wells
Flight Surgeon, Aeromedical Safety Operations
NAS Cecil Field, FL

Tower: Delta Sierra Double Zero – Cleared to break.
DSOO: RAJAH TAUR! *

"Break, but easy on the Gs; our respective airframes are aged. Throttle back 'bout 15 inches. Speed brake just a little – we'll make this a fast downwind. Gear and flaps to go. Bring the brake on up and we'll bleed off airspeed clean. We're still a long way from the 180. Prop 2200 turns and just a little more gas . . . OK. Give it 'bout 18 inches full increase RPM, and, oh, 'bout half-flaps. Checklist, harness – oops, now it's locked; blower low, mixture rich, canopy locked, wheels; I got three, prop full increase, and flaps are half. We'll make this a real squeaker; little bit of flare, hold her off; this ground effect is really neat. Settle and uh-oh. Oh (expletive deleted)!"

Here we begin a Toccata and Fugue with a quick overture of ting-ting-tings, followed by a rising crescendo of thunk-thunk-thunks, building to a fanfare of one 8-second screech and grand finale of scrunches.

Tower: Delta Sierra Double Zero, do you have a problem?

Ho-ho, do you ever! A red-hot, riproaring, combat proven, multidecorated Mk-1 Mod 0 naval aviator has landed with his feet tucked up in his armpits. He will probably be accused by his significant peers of another curious anatomic dislocation.

This is a variation on a theme of that old classic, the unintentional gear-up landing.

We shall assume that the pilot is neither excessively fatigued, physically ill, or mentally deranged. He has had what we call a "psychological accident." The groundwork for this accident has occurred in two separate and distinct stages.

First Stage: The aviator had, during initial training and subsequent flights, set up in his mind a train of events to precede touchdown. He breaks this habit pattern when his landing procedure is altered by the flight surgeon's extended pattern. He now does procedures as he thinks of them. This is not in and of itself wrong; a good flier should be able to break a habit pattern in unusual circumstances without disastrous consequences.

Second Stage: The pilot went through the landing checklist. However, a human being tends to see what he expects to see or what he *wants* to see. The pilot was looking for one thing on the gear indicator. He was looking for barber poles and he did not see any. No unsafe indications, therefore no unsafe conditions. An unintentional gear-up landing represents a totally preventable loss to the Navy. It is unacceptable performance from a professional. It can happen to you *if you let it.*

How Can These Accidents Be Prevented?

First: Realize that it can happen to professionals and dilberts, to smart guys and deadheads, to young studs, old fuds, or even lieutenant commanders. You may have 6000 hours in type, an IQ of 200, and be the perfect combination of cool professionalism and fearsome aggressiveness and *still* leave a long streak of paint, plastic, and plane pieces all the way down the runway.

Second: Realize that extreme caution is indicated whenever you say "gear to go." You have set the stage for the crunch. A little fear and trembling here may save much fear and trembling in the wing commander's outer office.

Third: When you look at the gear indicator, look for three *wheels.* With this slot machine, it is the only combination that pays. Say "I have three wheels and they are really wheels and not little ups." Slap the gear handle once to see that it is down.

Fourth: On final, think, and if you have any doubts about the configuration of the aircraft and are not *in extremis,* take it around. (You can always say you saw a flock of ibis on the runway if anyone asks.)

The next one could be you, and it ain't no joke, baby. ◄

* East Texas for "Roger Tower"

Not Up to Par

AS the *Intruder* passed the 45-degree position, a rapid wing rock developed, followed by a roll to an inverted position. In this attitude, just prior to ground impact, the pilot initiated ejection. The BN (bombardier-navigator) did not eject. Both were fatally injured.

The KA-6D tanker had departed Homefield just before dark on a scheduled tanker/FCLP (field carrier landing practice) flight. Upon completion of the night refueling mission, the flight proceeded to an outlying field for FCLP. Following the fifth successful pass, the pilot returned to Homefield because of approaching thunderstorms. He commenced practice touch-and-go landings. Following his third touch-and-go, the pilot requested clearance for a final landing.

The investigation revealed that all flight control system components and mechanical linkages were functioning properly prior to impact, with both engines developing full power. Significantly, it was determined that the flap/slat electrohydraulic drive units were in the fully retracted position. The cockpit flap position handle was repositioned during the inverted slide of the fuselage following impact. Matching structural damage between the handle and quadrant indicated that the pilot had either intentionally or unintentionally selected some intermediate position prior to impact.

The only significant discrepancy discovered during a review of aircraft logs and records was a malfunctioning APC (approach power compensator). Previous pilots had complained of sluggish reaction and erratic operation – a discrepancy the maintenance department had been unable to correct. It could not be determined if the pilot was attempting his final landing with the APC engaged. Squadron pilots, however, stated that as an LSO he was an advocate of the system; and during briefings, he encouraged them to fly at least one APC approach during an FCLP period.

A sampling of aircraft at the squadron and a naval air rework facility were examined for flap handle operation. It was discovered that flap/slat operation is not dependent upon the handle being in the detents provided. Actuation up or down begins as the handle traverses the intermediate position. This actuation varies between aircraft, depending on microswitch adjustment on the quadrant.

Additionally, when the flap handle was operated in the sample aircraft, it was noted that some had a tendency to hang up in an intermediate position prior to snapping into the 30-degree detent. This malfunction was attributed to the rubber flap lever FOD cover which had deteriorated, causing the handle to bind. As a result, a flight safety UR has been issued cautioning A-6 flightcrews to ensure that the switch is positively engaged in the selected detent. Further, an engineering investigation has been requested to determine the cause for the flap lever FOD cover deterioration.

During the 3 days preceding this mishap, the pilot had been attending instrument school in the mornings, working as schedules officer in the afternoons, and acting as LSO late into the evenings. He commented to squadronmates and the plane captain on the evening of the accident that he was very tired. In addition to his statement of being fatigued, he had expressed feelings of frustration and displeasure with how things were going in general.

Investigators concluded the most probable cause of the accident to be an unintentional flap/slat retraction by the pilot, resulting in a stall on final. Due to a lack of positive evidence, they offered the following hypothesis:

- The pilot took off in a state of physical fatigue and mental frustration. Following the first hour of rather exacting flying as the night tanker pilot, he commenced night FCLP. Prior to completion, the threat of weather forced him to return to Homefield. After three mirror passes, during which he and other pilots in the pattern expressed their dissatisfaction with the intensity of the "meatball," he called for a final.

- Assuming at this point that his flap switch was not in the 30-degree detent and that he attempted an APC approach, the system may have malfunctioned as previously stated. His logical reaction would simply be to disengage APC and continue the approach manually. The throttle friction lever, which is adjacent to the flap switch and traverses on the same radius of action, can be moved forward to disengage APC. During his haste to move the friction lever, he may have nudged the flap switch forward. As noted in NATOPS, the first indication of stall with flaps and slats retracted is loss of lateral control – not buffet onset. A gradual increase in stall speed of approximately 30 KIAS would also occur as flap/slat retraction took place. The pilot's failure to recognize this situation and prevent the aircraft from entering an irrecoverable condition can only be explained by a lack of attentiveness brought on by fatigue.

Although each pilot is ultimately responsible for his physical and mental well-being, it should have been recognized that the pilot was functioning in less than peak condition. Accordingly, it appears that there was an element of supervisory error in this tragic mishap. ◄

ASOs: You *can* break the cycle!

(Learn and Live From the Experiences of Others
or
History Repeats Itself)

By LCDR Ken Sanger
Naval Safety Center

HISTORY repeats itself . . . trite, but true, especially when it comes to aircraft accidents. The accident may be a wheels-up landing, a stall/spin accident, or any other common-type accident. But whatever it is, you can be reasonably sure that sooner or later, the same type of accident is going to occur again. This interesting fact has led a number of commands to attack the problem of reducing accidents by attempting to expand the time between each accident of the same type. For example, if one can determine that a wheels-up landing has occurred in a particular command every 92 days during the past 5 years, the possibility is at least suggested that this time between accidents might be lengthened by paying particular attention to this type of accident, particularly after 60 or 90 days have elapsed. The best approach, however, is to keep pilots *continuously* aware of these recurring errors and the reasons behind them, thereby equipping the pilots to be ever-ready to cope with situations and events which produce such mishaps.

We have long attempted to do this by briefing mishaps in APMs, maintenance meetings, readyroom ramblings, bar room banter, and miscellaneous musings. Unfortunately, once the recent memory of a mishap fades, so does awareness of these problems. One way to extend this awareness, hopefully, is to make a bore of yourself. *Brief and rebrief these "peculiar" or "DS" accidents on a regular basis.* Develop a thick skin to ward off the "oh, no – not another spin/fuel system/electrical system/etc. lecture! How many times are we going to have to listen to this, Super Safe?" The answer, if you want to respond, "As long as we're flying this aircraft!" We in naval aviation must break the syndrome of "We haven't had an accident or incident of this type in a long time, so the problem doesn't exist anymore." Parenthetically, this syndrome is sometimes called complacency.

Complacency increases with time or distance from the problem. The further we are from the problem, the less it appears to be a problem. As the accident rate continues to decrease, the more difficult it becomes to *keep* it decreasing. When the flames subside at a fire, the crowd loses interest, and only the firemen remain until the job is complete. And, as the accident rate decreases, the more important it becomes to stop the cyclic-type accidents as they begin to count toward a larger percentage of all accidents.

What are these accidents which occur in singles or groupings that might have been prevented by a recent briefing of an aircraft system, characteristic, or past accident? Some are:

- Stall/spin
- Fuel exhaustion
- Crosswind landing/takeoff
- Trim runaway
- Collisions with ground or water
- Gear-up landing
- Hydraulic failure
- Misrigged flight controls
- Midair collision
- Single-engine landing

As an indication of the frequency of cyclic-type accidents, the following COMNAVAIRLANT study for fiscal years 67-73 provides interesting information.

Accident Category	Average Days NAVAIRLANT Between Accidents
CV Landing	26
Field Landing	46
Crew Coordination	84
Midair Collision	129
Cat Launch/Climb Transition	141
Fuel Exhaustion	198
ACM/DCM	200
Aircrew Disorientation	231

These topics are but a portion of the shopping list available, ASOs. Expand on them, and don't be afraid to brief a subject more than once a year or once a quarter. Try to outguess the accident lurking around the corner by keeping flightcrews and maintenance personnel current in all cases. Strive to become an accident preventer rather than an accident investigator. ◄

TAKE TEN!

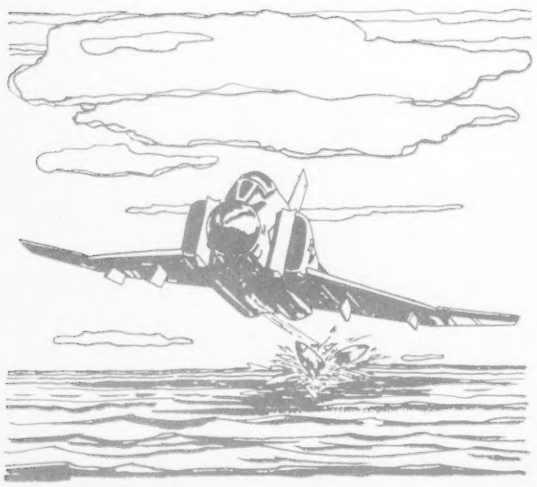
By LT Richard L. Marquis
TRAWING-2

I FEEL it is worthwhile to deviate from the usual rendition of squadron safety hazards and address a recurring problem of flight safety that is Navywide. Before delving into philosophy, a review of a few mishaps is in order to align our thinking.

From the *WEEKLY SUMMARY* No. 39-74: "While on an area fam flight, the crew of an F-4J succeeded in disintegrating the centerline fuel tank after ricocheting off the water while performing unauthorized low-level flight." To say the crew survived by sheer luck is a ridiculous understatement.

Another aviator discussed in this same *WEEKLY SUMMARY* was not quite so fortunate. "Shortly after takeoff, the aircraft (OV-10A) was observed making numerous low passes and steep turn reversals over a lake considerably south of course. Altitude was estimated to be about 50 feet over the water. On the final pass, the pilot flew low over a bridge, made a steep left turn, leveled his wings, and struck a 72,000-volt powerline at about 100 feet." The pilot and aircraft were lost.

Finally, a recent aircraft summary report was on the message board concerning an A-7C. In a thumbnail sketch, the pilot was making a modified straight-in approach in VFR conditions. The pilot, who was not wearing his oxygen mask at the time of the accident, had made the transition to the landing configuration, and was attempting to descend and decelerate to glidepath while transmitting on the radio. At this point in the approach, the pilot stated that he felt that there was no engine response, and ejected. The aircraft accident investigation and subsequent disassembly and inspection showed the engine was developing near full thrust at time of impact. The accident board stated: "NATOPS was not complied with in that the pilot failed to wear his oxygen mask at all times. He had disconnected his mask from the right side during the flight. The resulting mask position required left-hand or head/shoulder movement for radio transmission during final approach. The action would not allow an adequate external or cockpit instrument scan during radio transmissions and is considered a contributing factor to this accident."



It would seem that descriptions of the aforementioned accidents should end with 'nuff said. But that obviously is not the case since we read about these flagrant violations of NATOPS and standard operating procedures too often. We often read so-called "motherhood messages" of safety with distaste, since they cover such basic ideas, and yet, highly experienced aviators continue to willfully disregard established procedures. Why would a highly trained and fully qualified aviator allow his professionalism to deteriorate in such a manner? Why would he jeopardize his aircraft, his life, and the respect of his peers? If I could offer an exact answer, I would obviously be a hero to the Safety Center. I can't, but I would still like to offer some observations made during my tenure as a squadron safety officer. During interviews with aviators who have made some violation of safety while flying, I got answers as to cause ranging from, "I am the pilot in command and will utilize the aircraft as I see best," to "I just wasn't thinking."

In my opinion, the first answer can be dealt with by the NATOPS and safety officers conveying, through reason and logic, the message of the proven, accepted practices being the best path to follow. The latter answer is harder to cope with. The individual knows better, but becomes complacent and gets drawn into the unsafe situation. A naval aviator has to be, by nature, one of the most aggressive individuals in the world. How can he channel this asset? Again, hopefully, by reason. On a personal level, *think* before you act. You owe it to yourself. Of the pilot error type incidents I have dealt with during the past year, 90 percent could have been prevented by the pilot involved taking 10 seconds to evaluate the possible ramifications of his action. Taking 10 will, I feel, allow professionalism and sound judgment to prevail over impulse and stupidity. ◄

AIRCRAFT TIRE DAMAGE DUE TO GROOVED RUNWAYS

A RECENT point paper, prepared by VP-40, presented facts and recommendations concerning damage to aircraft tires resulting from landings on grooved runways.

It was noted that DFW (dedicated fieldwork) periods were resulting in excessive damage to aircraft tires. Investigation indicated that poorly executed landings were not a cause factor, and that the majority of damage appeared to be a result of those DFW periods conducted at Beale AFB.

It was determined that the type of damage sustained by the tires was that termed "chevron cutting" (see photos), and the investigators suggested that this could be due to the grooved runway at Beale. Doubt existed, however, as to whether the cause factor was a bad lot of tires or the grooved runway.

The latter supposition was substantiated by chevron cutting which was incurred with a new set of tires. The instance was a DFW period conducted at Beale AFB in September 1974. The aircraft was a P-3C, recently accepted from Lockheed and with a new set of tires of a different lot from those previously affected. The tires

- had 18 prior landings;
- were inspected before flight and found to be in "like new" condition;
- made 15 landings during the flight;
- were inspected during the flight from inside the aircraft – no damage observed;
- upon return, were found to be cut to the extent

requiring change.

Subsequent to this instance, personnel at Beale AFB were contacted and the following information was obtained:

- Squadrons homeported at Beale were also incurring chevron cutting to aircraft tires.
- C-141 squadrons which conducted touch-and-go landings at Beale had also inquired if the runway could cause chevron cutting.
- The problem was so significant that the Air Force was in the process of the fourth Tire Life Cycle Test conducted in the past 2½ years at Beale.

Further contact with Mr. Bill Olsen, Aero-engineer in charge of the above tests, revealed:

- Chevron cutting was a problem common to all grooved runways – authenticated by the Air Force and civilian air carriers.
- Previous tests had indicated that one landing could cause sufficient damage to require a tire change.
- Good landings (P-3 type) resulted in a greater degree of cutting. Hard or firm landings brought tires up to speed faster.
- New tires sustained more damage than old or worn tires.
- The Air Force recognized this as a continuing problem and was attempting to identify a tire which could withstand the rigors of a grooved runway.
- Perusal of the IFR Supplement has disclosed that those airfields having grooved runways are so identified in the aerodrome remarks section.

In the interest of safety, reduced operating costs, and fuel conservation (it requires about 6 gallons of petroleum to manufacture one P-3 type tire), VP-40 recommended:

- P-3 aircraft be restricted from DFW periods on grooved runways.
- All P-3 aircraft landings on grooved runways be restricted to a necessity basis.
- After all landings on a grooved runway, the aircraft tires should be inspected prior to another takeoff. ◄

In the Letters section of the OCT '75 issue of APPROACH, we published a letter from CDR W. G. Carson titled, "Any Ship in a Storm." In the comments following his letter, we made a blind broadcast to the CO of a DE, reputed to have had a couple of *Hueys* on his deck at the same time, to write us the details of what had happened. We didn't hear from the CO, but we have confirmation from another eyewitness.

A *Huey* is deliberately ditched near BLUE RIDGE as one of the ship's boats stands by to pick up the pilot.

CROWDED DECKS

By AW3 John P. Pieper
HSL-33

A Vietnamese Air Force H-1 is pushed over the side so waiting *Hueys* can land on the helicopter deck. The helos were pushed into the sea because of lack of space.

USS KIRK, flagship for COMDESRON 23, and USS COOK had been assigned the task of escorting USS HANCOCK. Both COOK and KIRK had LAMPS detachments onboard throughout the operation *(evacuation of Saigon – Ed.).*

I was a crewman attached to Detachment 2 aboard USS COOK. Due to various maintenance problems with the KIRK's bird, our H-2, Tango Foxtrot 13 (also known as Sir Hiss), carried the load. For the week we were on station before the action began, our daily schedule consisted of dawn and dusk patrols, as well as many utility missions. The radar and ECM coastal searches were a precautionary measure. Intelligence reports warned of possible boat activity.

As each day passed, tension mounted. The ship's tactical landing force party carried out their practice for repelling boarders. CIC was buzzing with activity, and "rumor control" kept everyone guessing. Then, on the routine dusk patrol of 28 April, things began to happen.

Shortly after 1900, panicky transmissions over the UHF radios broke the silence. Than Son Nhut Air Base was under attack by A-37s. The ships immediately went to GQ when several unidentified contacts were picked up on radar. By this time, the pilots and I were uncomfortable, and we really became alarmed when a fire control radar from one of *our* ships locked on us. That was when the HAC dropped the collective, dove for the deck, and headed at max speed for the safety and shelter of our flight deck.

The following morning, refugee boats of all descriptions dotted the sea. To us, it was apparent that the beginning of the end was at hand. Out of desperation one boat skipper kept bumping into the side of our ship. There seemed to be a definite communications breakdown. COOK's interpreter was speaking broken Vietnamese, while the refugees were shouting to us in near-perfect English. Eventually, the message was understood, and by having them follow us, we led them to a waiting USNS ship.

The afternoon of the 29th was even more exciting. Air America *Hueys,* flying without navaids, arrived overhead. Their requests were simple. They wished to land, unload their passengers, refuel, and return to the beach for more people. These pilots gained my respect after hearing their reports. They landed wherever there was room, and they risked their lives time after time to

Refugees arrive aboard BLUE RIDGE. The helicopter was one of 15 which landed during the day.

save others. Many were lost to hostile fire, while others ditched at sea.

In a relatively short time, our flight deck team handled eight *Hueys.* These eight aircraft unloaded about 64 refugees. One pilot, I remember particularly well, displayed a spirit typical of the operation. Flying alone and unarmed, all he asked for was a certain brand of cigarette and a drink of water.

The next day was even more hectic and traumatic. Many of the pilots who had landed the day before had been in the Navy at one time or another, so landing aboard ship wasn't new to them. The pilots we faced on the 30th were terrified ARVN pilots. A DE deck isn't too big to begin with, and when you add the difficulty of landing a *Huey,* with another already on deck, there is an extremely dangerous condition.

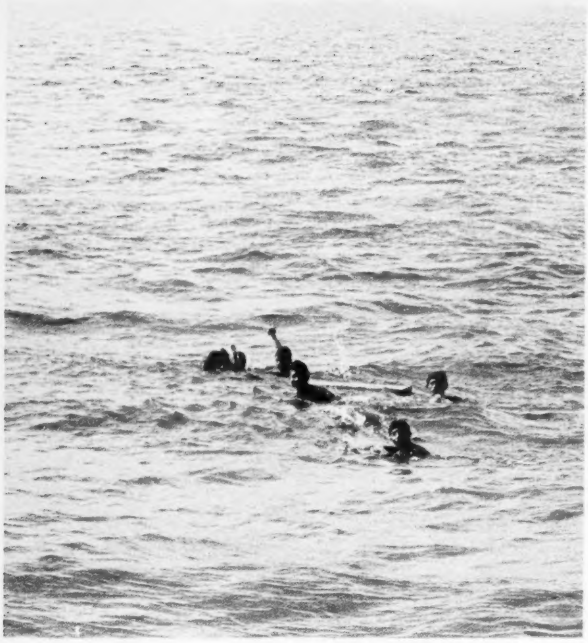
Fortunately, the seas were calm. We briefed the flight deck crew to prepare for anything. We discussed what had to be done and who would do it. Two of our pilots would run out and shut down the engines. While they did that, six of us from the detachment would disarm the bird and soldiers and lead the passengers to safety. This kept the number of personnel on deck to a minimum. The fire parties, supplemented by volunteers, remained under cover. While the *Hueys* were on approach, the only person on the flight deck was the LSE. The safety nets had been dropped to help the disposal of aircraft.

There wasn't any radio communication, so we took them as they came. My muscles still tense slightly every time I hear the distinctive whup-whup of a *Huey.*

Once the first helo had been shut down, we put an iron pole under its skids. By pushing, rolling, and dragging, we managed to position it with its tail over the water and the nose pointing down the lineup line. Another *Huey* was inbound, so we secured the first one's blades, took cover, and hoped for the best.

Navymen aboard BLUE RIDGE carry two Vietnamese children to safety after they had arrived aboard a Vietnamese Air Force helicopter.

The Vietnamese pilots proved their ability and courage, and in seconds we had a second *Huey* aboard. This time, using the pole, we ran it over the side. For just a second it hung on the lip of the deck edge, but gravity took over and the helo flipped into the ocean.



Vietnamese swim off the coast of Phu Quoc Island.

A third *Huey* came in, and again the pilot managed a near-perfect crossdeck landing. After a short lull a fourth *Huey* arrived, and our luck held as he made it. His skids ruined our deck, and he wiped out a light or two, but then the problem was our own bird with a low fuel state. However, our bird returned and landed crossdeck, and when he shut down, we measured the clearance – all of 7 feet!

Operating in a similar fashion to the COOK, the deck crew of KIRK landed 16 *Hueys!* Additionally, they also took the passengers from an H-47. The only difference aboard KIRK was that they had a wee bit more room, due to their configuration that could accommodate a *Huey* on the fantail. Unfortunately, their luck wasn't as good as ours. Several *Hueys* caught blades and crashed, but all of them crashed clear of the deck. Miraculously, there weren't any injuries throughout the operation. When it was all over, KIRK, as impossible as it may seem, had the H-2 in the hangar, three *Hueys* on the flight deck, and one on their fantail.

Now, would you like to hear how we launched our H-2 with an OV-10 on the deck?

The CO of USS KIRK, in summarizing the activities described above, said his men had nicknamed their flight deck the "beer can deck." After incoming **Hueys** *were landed, "they were opened, contents emptied, and then tossed over the side."*

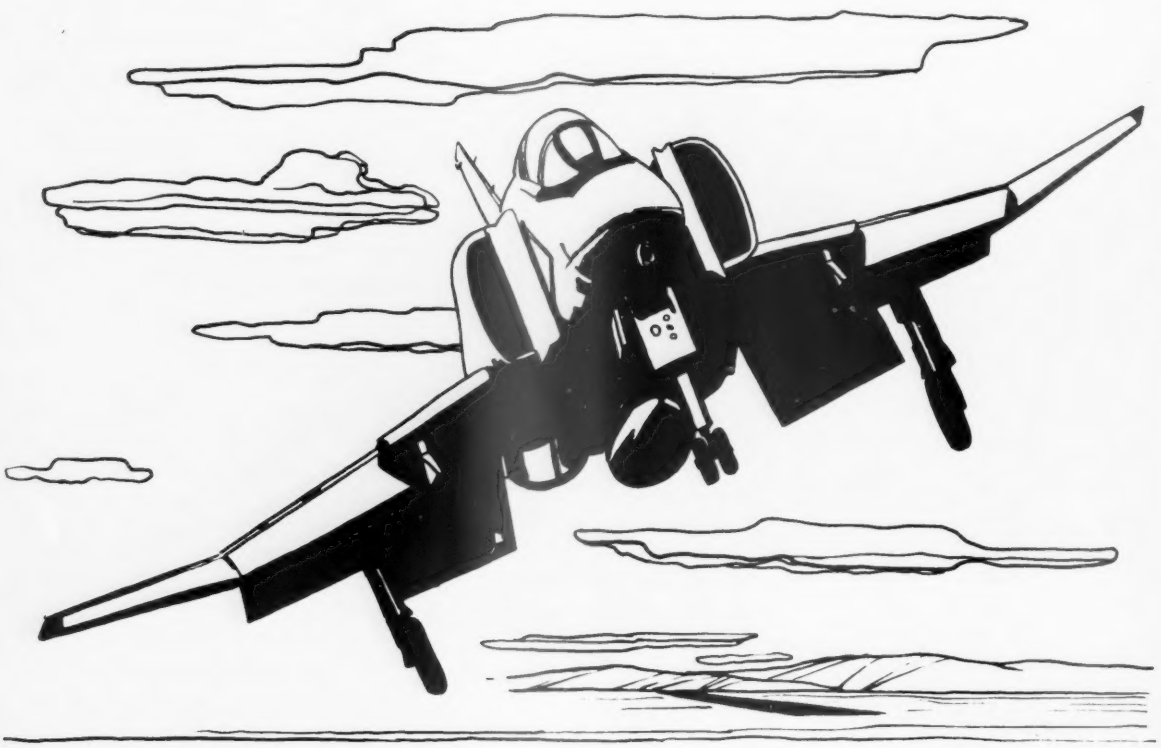
One of the true measures of a ship or squadron's safety program is its ability to adapt to unusual or different circumstances. In this episode, the crews of KIRK and COOK, plus the LAMPS Det personnel, were faced with an awesome operational problem that definitely had to be classified as unique. Yet, they adapted to the circumstances, improvised and adjusted as necessary, and ended up completing the difficult mission with minimal damage and no injuries. Well done to all concerned. – Ed.

NORDO Section Approach

LTJG Brian Calhoun of VC-2 was in the GCA pattern at NAS Oceana after returning from an A-4 service mission in the Boston area. His routine GCA was interrupted when Oceana Approach Control advised him of an orbitting lost-comm aircraft overhead the Norfolk VORTAC. Having sufficient fuel to effect a rendezvous, LTJG Calhoun requested clearance up through the overcast to 17,500 feet. After handoff to Washington Center, LTJG Calhoun advised that he would join up with the NORDO aircraft, a VA-66 A-7E, at FL330. After successful rendezvous, the *Skyhawk* assumed the lead. Following radar vectors from Oceana Approach Control, the flight began a gentle turn toward Oceana. A gradual descent was initiated and both aircraft slowed to 200 KIAS. By use of hand signals, the troubled aircraft was dirtied up above the overcast, and a dirty penetration was commenced at 170 KIAS. Oceana GCA picked up the section, and at 1000 feet AGL, both aircraft broke out. LTJG Calhoun continued to lead the A-7 through the precision approach until the ball was clearly visible. After passing the lead to the A-7, he waited until the *Corsair* touched down on Runway 5R. The A-4 then landed on 5L. Both aircraft met at the end of the runway and LTJG Calhoun escorted the A-7 to the transient line. LTJG Calhoun's immediate assistance and flawless execution of a no-radio section IFR approach with a dissimilar aircraft is highly commendable. Well done, LTJG Calhoun.

Bravo Zulu

LtCol W. A. Ferdinand and 1stLt D. D. Tyler
VMFA-232



Lieutenant Colonel W. A. Ferdinand and his RIO, 1stLt D. D. Tyler, were engaged in FCLPs in an F-4 *Phantom*. Turning downwind after their second pass, the master caution light illuminated, immediately followed by a "check hydraulics gages" light. First Lieutenant Tyler was informed that the PC-2 gage was fluctuating between 1000-1500 psi and that the next pass would be a full stop. First Lieutenant Tyler informed the LSO and the tower of the situation and was given clearance for a shortfield arrestment.

Upon rolling wings level on downwind at 600 feet AGL, the PC-2 rapidly deteriorated to zero and the aircraft began an uncontrollable right roll. Lieutenant Colonel Ferdinand put the throttles to full military, countered the roll with full left rudder and full left aileron, and told 1stLt Tyler that he was having trouble maintaining wings level. At 190 knots and 1500 feet, the 25-degree right roll was controlled, at which time 1stLt Tyler reported that the right inboard spoiler was full up.

A decision was made to attempt a wide, gentle left turn to final. First Lieutenant Tyler informed the tower and LSO of their intentions. At approximately 3 miles at 1500 feet, the turn to final was commenced with a minimum controllable speed of 175 knots.

A successful E-28 arrestment was made under LSO control. Lieutenant Colonel Ferdinand, along with his RIO, 1stLt Tyler, through expert airmanship and calm, professional judgment overcame a potentially disastrous situation and saved a valuable weapon system.

Well done!

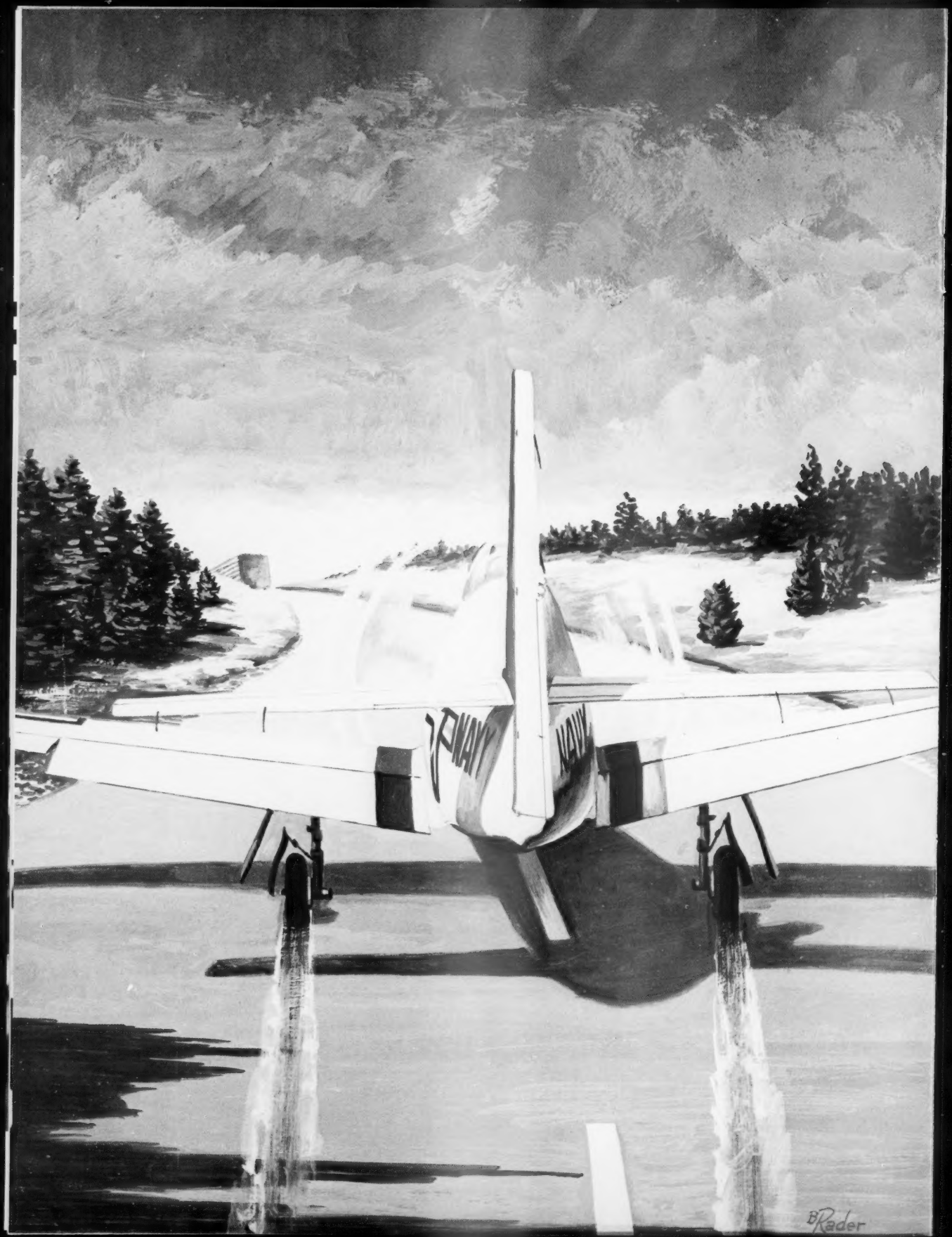
Don't "duck" your preflight duties.

AFTER checking the aircraft logbook, the pilot arrived on the flight line for a routine mission in the *Crusader.* Commencing his walkaround preflight, he stepped up and removed the intake screen. After removing the cover, he stuck his head into the intake for a look-see. To his astonishment, he heard a noise emit, sounding like "quack, quack." He turned to the plane captain and asked him to listen; sure enough, there were sounds of a duck. The plane captain told the pilot he would crawl down the duct and retrieve the "duck."

The pilot helped the plane captain get into the intake, and shortly thereafter he disappeared down the duct. The pilot, after a second or two, heard one heck of a commotion (duck quacking and plane captain screaming) and told the plane captain to come back out and use his gloves to catch the duck. A different plane captain than the one the pilot had seen originally, emerged from the intake. The pilot handed him his gloves, which the "new" plane captain put on, and promptly disappeared once more down the tunnel of the intake. Again, there was a helluva racket coming from the tunnel as the plane captain attempted to capture the fowl.

At this point, another plane captain came up to the pilot and succeeded in diverting his attention, at which time *both* plane captains slipped out of the intake duct. The pilot began to suspect "fowl" play. Since no one would admit to the embarrassing event, the pilot, not being absolutely sure of the situation, removed his parachute harness and "dived the duct" himself to search for the "duck."

Upon entering the duct he was heard to remark, "If there is no duck down this tunnel, I better not find any of you plane captains when I get out of it." ◄


B Rader

UNSCHEDULED ROAD RECCE

A T-28B took off from homebase on an IFR clearance for a hurricane evacuation to a base about 80 miles away. In the aircraft were an instructor (a highly rated SERGRAD) and a student naval aviator who had recently completed IFR training. Approaching destination, the aircraft was directed to hold at an intersection, then was subsequently cleared to descend in the holding pattern to 6000 feet. After two or three other communications with Approach Control, the aircraft was given a heading for an approach and cleared to descend to 2000 feet. At this point UHF communication was lost.

After leveling off at 2000 feet, the instructor tuned and identified the destination LOC in preparation for that approach. In an attempt to determine his exact position, the instructor tuned the destination VOR, but the equipment failed to respond properly. An OFF flag was noted in the ID-249, no movement occurred on the No. 2 needle of the ID-250, and the aural identifier was not heard. Aware of some type of electrical malfunction, the instructor noted 17V on the voltmeter. Assuming a generator failure, he directed the student in the rear cockpit to select BATT ONLY and No. 2 inverter since electrical control was in the rear cockpit. The instructor set the transponder to code 7600, then to 7700, secured the VOR and ADF, and made several attempts to transmit on Guard. With little hope of regaining either COMM or NAV equipment, the instructor took physical control of the aircraft and commenced a climb to altitude on a northwesterly course. Prior to passing 10,000 feet, the ICS became inoperative. Shortly thereafter, both crewmen donned their oxygen masks.

The climb was continued to 17,000 feet, and things began to go from bad to worse. An OFF flag appeared in the attitude gyro, the RMI became inoperative, the gear position indicators and the compass annunciator barber-poled. Approximately 30-40 minutes after the climb commenced, the aircraft reached marginal VMC between layers. A dark, contrasting area in the undercast proved to be a break in the cloud layer, permitting a glimpse of the ground. The IP decided to take advantage of this, and sent the *Trojan* spiralling down in marginal VMC conditions to 3000 feet. From here the rolling terrain – mostly pine trees – was observed through a lower layer of broken to overcast clouds estimated to be 300-500 feet AGL.

When the intersection of two highways appeared, the pilot decided to attempt a landing on the most suitable road. A precautionary landing approach was flown to a normal touchdown on a section of highway that had an upward incline and a slight left curve. Immediately after touchdown and normal braking, hydroplaning was encountered. As the aircraft closed rapidly on a tractor-trailer rig at the crest of the hill, maximum braking was used, further aggravating the hydroplaning. As directional control was limited, the aircraft drifted to the right, allowing the right MLG to leave the pavement. Shortly thereafter, the right outboard section of the wing struck a road sign.

Hitting the road sign aggravated the right drift, causing the left MLG to leave the pavement, followed immediately by the right wingtip striking some small pine trees on an embankment. The aircraft rotated clockwise rapidly as the nosewheel and right MLG were transiting a drainage ditch that paralleled the right side of the highway. As the aircraft continued its right rotation, the left MLG folded and the nosewheel was completely sheared as the apparent result of hitting a log lying in the ditch. The rapid, twisting movement caused the empennage section of the aircraft to be dragged over the hump formed by the ditch and the highway roadbed, causing substantial damage to the tail section. As the aircraft continued to rotate, the prop and engine section nosed into the steep embankment causing severe prop damage and sudden stoppage of the engine. Fortunately, the crewmen exited the aircraft uninjured. The driver of the tractor-trailer rig stopped to render assistance, and military authorities were soon notified.

Continued

A preliminary inspection of the entire electrical system by squadron personnel revealed no discrepancies. These checks were systematically made in the aircraft itself. The operation of both inverters, RMI, C-1 amplifier, VOR, UHF, ICS, and associated wiring indicators was normal. A preliminary check of the generator voltage regulator, voltage regulator base, and the reverse current relay by Whiting Field AIMD proved normal, and, subsequently, these items were delivered to NARF for extensive testing. The completed DIR confirmed AIMD's findings. The reverse current relay (Type A-7000A), however, proved to be defective as follows:

- The main contactor contact (contact nearest generator) as depicted in Fig. 3-1 of NARF Pensacola Technical Publication AN 03-5AJ-8 was not making complete contact due to a burned condition.
- The voltage relay coil contacts were slightly corroded.
- The contact overtravel was out of adjustment (.010 in lieu of .020 inch) as discussed in para 5-19B of the NARF Pensacola Technical Publication.
- Overall operation: The main contactor contact did not complete the circuit between the battery and generator on the generator side, although contact was still being made on the battery side. This condition allowed battery voltage to reach the indicator terminal of the reverse current relay, energizing the bus control relay. Thus, power was removed from the generator warning light circuit although the generator was operating normally, but off the line. Local squadron maintenance practices were not contributory to this mishap. The reverse current relay is a sealed unit that is never checked internally at the squadron level and not normally checked by NARF facilities.

The pilot, when confronted with the electrical problem and loss of communication, realized the seriousness of the situation. He weighed his options: bailout was considered, but rejected since his aircraft was still operating, and some form of continued flight seemed more desirable. A descent in the blind in IMC was never seriously considered because of a lack of obstruction clearance, uncertainty about the ceiling and visibility, and the observation that inflight weather had changed significantly from the weather brief of 2.5 hours prior. The pilot chose to climb to altitude while departing the destination area to provide maximum obstruction clearance and to get well clear of the high density T-28 traffic approaching from the south. This climb was continued on a northwesterly heading due to the pilot's familiarity with a current weather depiction chart indicating a possibility of regaining VMC. The drainage of the BATT voltage after prolonged BATT ONLY operation rendered a failure of RMI, attitude gyro, ICS, and resulted in erratic and unreliable indications of the turn needle and other instruments.Realizing that instrument flight could not be continued, the instructor again considered bailout, but decided to descend. This he was able to do in very marginal VMC.

The mishap board concluded that the primary cause of this accident was the malfunction of the reverse current relay, removing the generator output from the aircraft's electrical system without any warning or caution light indications, while in an IMC environment. The weather was a contributing environmental factor because the wet highway led to hydroplaning which prevented the pilot from negotiating a slight 10-15-degree left curve in the road.

The mishap board recommended that the electrical emergency procedures in the T-28 NATOPS manual be expanded to cover the useful battery life with various components operating on battery only. The convening authority noted that the reverse current relay failure experienced during this flight is regarded by NARF Pensacola as an isolated failure. Records available indicate an almost nonexistent failure rate. These units were originally unsealed. Action to seal these units was initiated by NARF several years ago. Since that time, no specific inspection requirements for the reverse current relay have been in effect at any level of maintenance. Existing test procedures were completed on the aircraft electrical system at NAS Whiting with negative results. It was not until the unit was opened (a nonstandard procedure) at NARF Pensacola that any discrepancy was discovered. It was therefore recommended that an inspection procedure be developed to detect this type of occurrence, including actual opening of the unit (and resealing) by NARF, if necessary. Finally, the squadron NATOPS officer has been directed to initiate a NATOPS change providing battery endurance information under various load conditions. ◄

Checklists are written in blood – treat them with respect accordingly.

Ace L.

notes from your flight surgeon

Underestimated

AFTER rescue, the survivors (an F-4 crew) emphasized that they had underestimated the effects of exposure at sea. On the day of the accident, the combined water and air temperatures were very close to 120°F.

Both survivors stated that, in retrospect, it was obvious that they should have deployed their survival kits and liferafts early. Their hands became very cold, and it was difficult to perform any task that required manual dexterity. After 5 or 10 minutes, the pilot's hands were too numb to manipulate his survival gear. He says he was shaking so badly he doubts if he could have handled the horse collar himself.

NATOPS recommends the use of antiexposure suits under 120°F combined air and water temperatures, although requiring their use remains the CO's prerogative.

The crew was in the water 25 minutes before rescue. The fact that the two SAR aircraft which rescued these pilots were airborne with full crews greatly decreased the exposure time. The potential for a less-than-optimal recovery, however, was certainly present.

Again, we must emphasize the importance of antiexposure suits and insist on their use if the weather dictates such a necessity. Through publications and lectures, aviators must be cautioned on environmental factors as the seasons change. They must remember to assess factors that will determine the ultimate result should they confront a survival situation on even the most routine hops.

Flight surgeon in MOR

Tied Flares

"MY two signal flares in the seat pan were tied together with shroudline," says a pilot after ejection and rescue. "I was having difficulty getting them apart. In my haste to signal the approaching helo, I actuated the night end of one flare. I extinguished it by holding it underwater and then activated the day end.

"The helo started a circle, evidently to approach me upwind. During the approach, the first flare went out, and I lit another."

A swimmer was dropped into the water.

"The swimmer told me to get out of the raft, which I did," the pilot continues. "When I was clear, he stabbed it with his survival knife. This caused me some chagrin – I had grown fond of it!"

Pickup was speedy.

Tying the flares together did not reduce their availability, but made it more difficult to use them, the squadron reports. This has been corrected on the squadron level. ◄

"With this diet you can eat anything you like. Now, here is a list of what you are going to like."

Letters

The Real Motivation

NAS Oceana, VA – Surely you're not serious in your DEC '75 reply to AG2 Sullenberger's letter, "Drink Up?" If the *policy* of buying a fifth for the LSO were even 1 percent of the motivation for remembering to drop the hook, then naval aviation would indeed be in trouble. The real motivation springs from the total desire to perform like the professionals we are – and the utter chagrin when our human weaknesses cause failure.

CDR J. O. Holland, USN
Commanding Officer
VF-43

Misguided Pride

FPO, New York – A squadron aircraft was launched on a postmaintenance checkflight. The pilot lowered the landing gear for stall configuration checks. Upon completion of the stall checks, the gear was raised and a loud crack was heard. The nose gear indicated unsafe. The gear was lowered, indicated safe, and an uneventful landing was made aboard the CV. Postflight inspection revealed that the nose gear doors had come in contact with the nose gear steering cylinder, resulting in minor damage to the nose gear doors.

A combined unsatisfactory report (UR) and aircraft incident report was compiled and submitted by Quality Assurance. The report was then forwarded up the chain of command for review as per SOP. When the report was returned to QA for final typing and sendout, "Aircraft Incident" had been omitted, and QA was informed that this would not go out as an incident.

What are quality assurance types to do? Because of aircraft damage and accident potential, this mishap is clearly defined in OPNAVINST 3750.6K as cause for an incident report. This is only the most recent example. Almost without exception, URs and other reports are modified to cover up for improper maintenance or pilot error. To err is human, and we all have made and will continue to make mistakes. However, these mistakes cannot be reported or corrected as long as people are hesitant to put themselves on report. Instructions outlining reporting procedures are written to be followed, but as long as these conditions continue, the instructions are useless. Please try to reemphasize the importance of accurate malfunction reporting and strict adherence to instructions concerning these reports.

Name Withheld

● **Unfortunately, this type of event is not infrequent and certainly not unique to your squadron. As you point out, the only possible explanation for this violation of regulations and safety is a squadron's misguided desire to "look good." The irony of the situation is that a squadron actually achieves the opposite effect by withholding incident reports. Each year, the quality and quantity of UR and incident reports submitted by the command are important factors in the CNO Safety Award Competition. It is *impossible* for an incident report to work against a squadron. However, it is *possible* for a lack of reports to work against a squadron. Thus, in addition to the vital safety information that fails to get passed by the incident report being suppressed, the squadron actually hurts itself, too.**

COs, ASOs, QA Officers, MOs – you are all responsible for ensuring complete, accurate reporting of all mishaps that require reports. Don't let *misguided pride* cause you to eliminate a valuable source of safety information.

C-9 Refueling With Passengers

New Orleans – On a recent inspection trip from NAS New Orleans to NAS Point Mugu and return, a major difference in standard operating procedures for the C-9 was noted between VR-1 and VR-30. Transportation west was provided by VR-1. The aircraft was refueled twice with passengers onboard. Transportation east was provided by VR-30. Passengers were required to disembark twice in order for the aircraft to be fueled.

In the interest of standardization and safety, if it is, in fact, a hazard to refuel the C-9 with passengers aboard, VR-1 should incorporate debarkation during refueling as policy. On the other hand, if it is not a hazard, VR-30 should not require it, because debarkation, all by itself, induces some dangers. Throw in additional factors of adverse weather, darkness, wet or icy ramp, and the possibilities can be seen to multiply. As a case in point, on 7 December, approximately 85 passengers were required to disembark at NAS North Island and proceed to the terminal between two C-1s that were just being started.

Though not a safety consideration, to empty the aircraft for refueling required additional ground time of the expensive *Skytrains*. This should be a consideration.

It is recommended that the Safety Center, in conjunction with the operational commanders, determine 1) if

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fueling is safe with passengers onboard, and 2) standardize procedures between the two VR squadrons.

LCDR F. M. Feltham, USNR
NATOPS Coordinator
COMNAVAIRESFOR

• To answer your questions simply – yes, it is considered safe to refuel a C-9 with passengers onboard. Secondly, the Safety Center is not in a position to order changes in procedures, but it does have a role in standardizing them. The Safety Center's function in matters of procedures standardization is to make recommendations regarding the safety aspects of the situation and endorse correspondence based on its conclusions.

The subject of the C-9 refueling with passengers onboard can be elaborated upon a bit further. NAVAIR 06-5-502, *Handbook of Aircraft Refueling for Shore Activities*, **gives authorization to commanding officers to permit refueling of aircraft with passengers onboard as long as specific safety regulations are complied with. However, there is nothing to prevent the commanding officer of a squadron or an air facility from imposing more stringent regulations within his own command than are called for by the controlling regulation or instruction. That is the situation which presently exists with the VR-30 C-9 aircraft.**

Inconsistency in operating procedures is not limited to the Navy alone. Some Air Force bases allow C-9s to refuel with embarked passengers, while others require them to disembark. Also, most airlines allow single-point refueling with passengers onboard.

Normally, the place to iron out any inconsistencies in operational procedures would be a NATOPS conference or in a common *Standard Operating Procedure.* **The matter of refueling with passengers onboard was discussed at the last NATOPS conference, but it was not a formal agenda item. There is presently a series of letters and recommendations in existence concerning a Navy VR/VRC operations manual which may amplify information available in each aircraft model NATOPS Flight Manual. At this time, however, it appears that the passengers onboard/refueling issue is at an impasse. Comments, anyone?**

Low Viz Approach

NAS Miramar – The article entitled "Emergency Low-Visibility Approach Procedures for Aviation Facility Ships" in the OCT '75 issue was quite interesting. However, it is not the first time these procedures have been used. In 1971, RADM W. Haley Rogers, then COMCRUDESFLOT 9/COMCRUDESGRU SEVENTHFLT/CTG 70.8 directed the development of LVAs which were identical to those described in the article. Well over 100 successful LVAs were conducted by USS HORNE (DLG-30), USS MEYERKORD (DE-1063), USS FOX (DLG-33), and several other destroyer type ships.

LT Jack McMann, flying HH-2s from the PIRAZ station, was instrumental in smoothing out procedures designed by the shipboard radarmen and us fixed wing types. USS FOX adapted the basic procedure to the NTDS, with very little loss in accuracy. RD1 Dick Ferrier of COMCRUDESFLOT 9 staff designed a plastic overlay to fit the NC-2 (complete with calibrations for different range scales to allow use of the shorter range scales at close ranges) to provide for an accurate, quick setup of the NC-2. Several other ships and individuals contributed to the final LVA package.

The entire package was submitted to COMNAVSAFECEN for approval, via CTF-77 (who had his staff observe demonstrations aboard USS HORNE), COMCRUDESPAC, and COMNAVAIRPAC. It was also promulgated throughout COMCRUDESGRU SEVENTHFLT as an emergency method to replace the then standard procedure of having the helo find a hole in the fog and the ship drive under it. At the time I left CRUDESFLOT 9 staff in 1972, the LVA procedure was still under study. It is good to see that it has finally hit the street.

LCDR Ken Denbow
VAW-113

Save the ADF

Fleet Post Office – During the last quarter of CY-75, we were deployed aboard an LPH and learned that the powers-that-be had ordered all LPHs to remove their low frequency homers – much against the wishes of the ship's personnel and its helo pilots.

It's common knowledge at the operator's level that the LPH radars are not reliable. I've been on extended cruises on three different LPHs, and all of them had real trubs keeping the radars up, especially the SPN-6. Even when the radar is up, its normal range is only 20 miles or less. What's more, since the TACANs (including the aircraft installation) are reliable only 75 percent of the time, I feel it's a big mistake to remove the only good backup navigation aid we have.

For example, for 2 weeks during our last cruise, our LPH TACAN was down, the SPN-6 stabilization system was out (targets were lost whenever the ship rolled), and at no time could the ship paint a target beyond 20 miles. Coincidentally, the IFF/SIF was also out. Needless to say, during adverse weather there was a real problem.

I know LPHs have UHF homers, but we have an aircraft installation problem with UHF homing equipment, and use of the gear does hamper radio communications during IFR recoveries. Perhaps I can't see the big picture regarding budgets/maintenance/spares support, etc., but I hate to see one of the most reliable navaids on LPHs go down the drain! Maybe the CVs don't need it because of all their fancy radars, but we're looking for trouble by taking out the LPH's low frequency homers.

Name Withheld

LPA Hangups

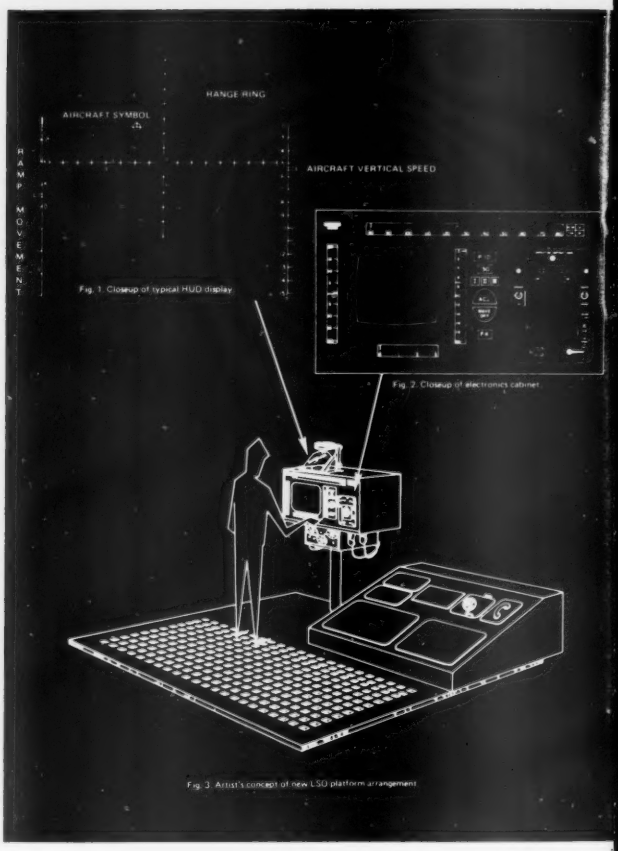
HMH-362 – I'm a helicopter pilot with both CH-46 and CH-53 experience and always don my survival vest for flight, whether it's over land or water. I've found a potentially hazardous situation with the vest, however. Unlike stiff-wing pilots whose means of escape are rarely restrained by articles of flight gear, a helo pilot's egress through escape hatches may be hampered by pouches that hang up or get tangled. I've been stuck during drills when these pouches got tangled in the seatbelt, hung up in the seat cushion between the copilot's armor plate and the collective, or just plain wedged between a leg and a strap.

My recommendation would be, wherever possible, to eliminate dangling gear which impedes egress. For example, one flare could be placed in each vest chest pocket and the dye marker could be stowed in the forward, left side unused pocket.

Capt J. M. O'Brien, USMC

• Both the flares and dye marker are optional items. They can, *if authorized* **by the CO, be deleted from the LPA. If the helicopter community has space for the items in the SV2 survival vest, then go ahead and put them there.** ◄

LSO HUD
[Head-Up Display]


RANGE RING
AIRCRAFT SYMBOL
AIRCRAFT VERTICAL SPEED
RAMP MOVEMENT
Fig. 1: Closeup of typical HUD display.
Fig. 2: Closeup of electronics cabinet.
Fig. 3: Artist's concept of new LSO platform arrangement.

NAS Patuxent River, MD – While much that is said about the LSO Head-Up Display (SEP '75 APPROACH) is true, there are limitations to the system which bring question to the advisability or practicality of two statements made in the September article: 1) that LSOs using the HUD could monitor with complete confidence a Mode I approach to 1/8 of a mile without ever seeing the aircraft, and 2) that it is planned to use the HUD for Case I and II, as well as Case III recoveries.

Let us first consider statement number one. Remember that the position information displayed on the LSO HUD is generated in the 1219 computer, based on error information from the SPN-42 radar. This information is the same as transmitted to the aircraft as steering commands and glide slope/azimuth deviation on the steering command display (needles) in the cockpit. In other words, the LSO's aircraft symbol is displaying exactly the same information as the pilot's needles. As anyone familiar with SPN-42 ACLS operations knows, the system is not infallible. It is possible for a console operator setting up an ACLS approach to misaddress an aircraft, thereby sending one aircraft steering commands based on the position of another. There have been instances of side lobe locks in which an aircraft, while receiving center needles steering information, executed an approach approximately one mile abeam the intended landing area. More commonly, though, it is not improbable that because of control program errors, system misalignment, or a plain old random electronic glitch, that a Mode I controlled aircraft will make an approach outside acceptable parameters, all the while displaying to the pilot (and therefore the LSO via the HUD) apparently acceptable position information. SPN-42 information, then, is not an absolutely positive indicator of aircraft position. For that very reason, the SPN-41 ILS was developed as a SPN-42 monitor to provide pilots with a means of cross-checking the reliability of SPN-42 information. Though several ships are certified to conduct Mode I approaches, they are limited, with one exception, to weather minimums of 200-½. (The exception is authorized to conduct Mode I's to 100-¼, but only if the specifically certified SPN-41 monitor is functioning and available for cross-check.) Therefore, it would seem unlikely that an approach could be monitored with complete confidence to 1/8 of a mile with no visual or other reference to cross-check aircraft position when the basis for the system is not safe for use without visual contact inside 1/2 mile.

At 1/8 of a mile the aircraft is less than 4 seconds from touchdown, making a safe waveoff extremely marginal at best.

In reference to statement two, it may be somewhat impractical to use the HUD during VFR recoveries. Because SPN-42 lock-on is required for position

information, groove length and aircraft interval would have to be increased to allow SPN-42 operators to acquire and lock-on each aircraft. This would increase recovery time and could affect cycle time.

The LSO HUD is a valuable and necessary addition to the LSO work station. Any LSO who has waved a 200-½ recovery would greatly appreciate the information available on the HUD. As the state of the ACLS art develops and more certifications to 100-¼ come along, such information will be indispensable. However, the limitations and the reasons for those limitations of the LSO HUD/SPN-42 system must be recognized and understood by its users.

LT Lew Kosich
NATC SATD
Carrier Systems

Your letter has been referred to LCDR Mitchell, the author of the article, who responds as follows:

NAS, North Island – LT Kosich's remarks are accurate in all respects. He is, however, arguing against some erroneous assumptions.

The statement that the HUD will be used in Case I, II, and III recoveries is an accurate one. Where the confusion arises is that the term "HUD" refers to the entire device. The "upper display" does require SPN-42 information to be of much value. However, there are numerous other essential items in the lower display and attached to the cabinet that the LSO needs to safely recover aircraft in all atmospheric conditions. These are the PLAT monitor, 19MC, ships trim/ramp motion indicator, deck status lights, UHF communications control, MOVLAS repeater, and wind direction and velocity indicators. All these items will be available only when the HUD is erected.

The other statement relative to waveoffs at 1/8 mile was also misconstrued. Nothing at all was mentioned about the HUD displays being the ultimate indicator of a safe approach. The upper display is, in fact, only intended to be a system monitor and is not designed for aircraft control. It can, however, be used as a waveoff decision device for Mode I approaches. I do not argue with LT Kosich that a technique waveoff inside of 4 seconds is almost always a close call. However, for an aircraft on a Mode I, on glide slope and centerline, it is quite a different matter and can be effected with adequate obstruction clearance. As the ACLS system continues to be improved, thanks to the efforts of dedicated people like LT Kosich, it may be advantageous to utilize such a capability. The intention was to demonstrate that given a satisfactory Mode I approach, the LSO will soon have the tools to readily accept or reject an aircraft for control at 200-½ or closer in. My apologies for not stating it this way initially.

LCDR C. S. Mitchell
COMNAVAIRPAC Force LSO

A Pair of Take-Charge Guys

Lieutenant (jg) Bill Baker, an F-4 pilot and LSO, and LT Art Beck, RIO, VF-41, were operating from USS F. D. ROOSEVELT when an A-7 being catapulted off the ship had a mainmount brace failure. LTJG Baker and LT Beck were directed to divert to the Sigonella Naval Air Facility to aid in the recovery.

After obtaining appropriate details, they proceeded to the divert field. Enroute, they contacted the divert field tower, informed them of the inbound emergency, and explained what assistance was needed at the field. Preparations included foaming the runway and obtaining the necessary communications equipment. Once on deck, LTJG Baker and LT Beck directed the efforts of the crash crew in foaming the runway and repositioning the mirror for the midfield gear.

With all things ready, LTJG Baker directed the A-7 to make several practice approaches to a waveoff prior to making a final approach. During these practice approaches, he calibrated the mirror and expertly "coached" the pilot, telling him exactly how to make his final approach. On the final approach, LTJG Baker made timely and precise calls which resulted in the A-7 engaging the arresting gear and rolling out without inducing significant damage.

The expeditious and professional handling of the situation by LTJG Baker and LT Beck turned what could have been a tragic accident into a relatively minor incident. They are commended for their take-charge attitude and demonstrated professionalism in accomplishing the task they were assigned.

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CREDITS/The EA-6B *Prowler* on our cover this month provides naval air with a new dimension in airborne electronic countermeasures. Painting by Grumman Aircraft Corporation artist Craig Kavafes.

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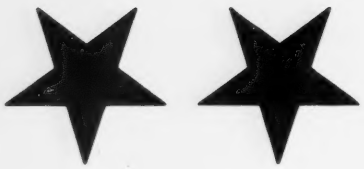
Low Flight

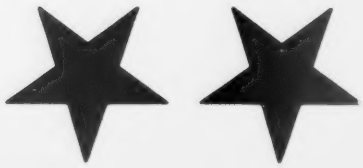
Author Unknown *
With apologies to John Gillespie Magee, Jr.

Oh, I have slipped the gagging bonds of earth and thrashed the
skies on grease-spattered blades;
Sunward I've climbed and tumbled in the mirth of stormy fog banks –
and done a hundred things
You would not believe – whopped and whumped and autorotated low
into the dingy overcast. Hovering there,
I've been passed by sparrows and flung my shuddering craft
through endless balls of hail.
Up, up the long, hysterical climb to 500 feet I've topped the
towering wheatfields with pounding heart –
Where never grasshopper, or even june bug flew. And, while
with cold, shifty eyes I've tried
The untrespassed sanctity of Special VFR . . . put out my hand . . .
and touched a tree.

* Ashamed to reveal identity.

Submitted by LCDR Bill Sears
Senior SAR Pilot
NAS Jacksonville



In America I found the confirmation of my hopes and came to understand the reason for the success of this great country; it was the free initiative and free work of a free people. This has been and still remains the wisest and most constructive formula upon which a free, progressive and successful human society can be founded.

Igor I. Sikorsky